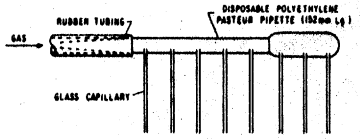
Lab Notes

An inexpensive (<$0.10) manifold for simultaneously delivering gas to a number of relatively small receptacles can be constructed in about 10 minutes from common laboratory equipment. A disposable polyethylene Pasteur pipette (length 152mm, diameter 7.5mm or length 184mm, diameter 4.5mm) is punctured along one seam with the tip of an 18-gauge hypodermic syringe needle from the bulb end to just before the tapered-end portion. The holes are then enlarged slightly by pushing the plunger from a 100-μl syringe into them. Melting-point capillaries (0.9-1.1mm i.d. x 100mm) cut to any desired length are forced into the holes to complete the manifold.



Daniel P. Schwartz
Food Safety Laboratory
USDA Northeastern Region
Eastern Regional Research Center
600 East Mermaid Lane
Philadelphia, PA 19118

Everyone, at one time or another, has had to deal with a small spillage of mercury from a manometer or a mercury seal. The normal spillage-disposal techniques have drawbacks: forming the amalgam with zinc dust or Mercurisorb is messy and the mercury is lost; sucking up the droplets with a vacuum-assisted aspirator is clumsy and requires special equipment.

I have found a quick, simple and safe way to handle such spillage. A small piece of solid carbon dioxide is placed on the surface of the mercury which very quickly freezes (m.p. -38 °C) and can then be transferred with tweezers to a suitable container for reuse.

Stephen Mann
Marconi Research Centre
Great Baddow
Chelmsford, Essex
England

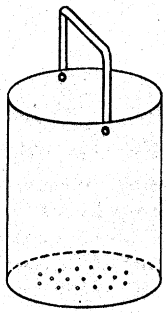
Many recorders employ pens with capillary tips and ink reservoirs. These capillary tips tend to become clogged especially after prolonged periods of non-use.

We have found that, alternatively, fiber-tipped pens can be used, attached to either the existing pen holder, or an easily made adapter. In cases where the whole length of the fiber-tipped pen cannot be used because of space considerations, the pen (the body of which is generally plastic) can be cut to fit, as long as a sufficient length of fiber wick is left. This has the advantage that ink can be added to the wick and the pen used as long as the tip remains sharp.

Mordechai Brand
Department of Chemistry
Tel Aviv University
69978 Tel Aviv
Israel

The use of highly corrosive cleaning agents, such as potassium dichromate/sulfuric acid, suffers from several drawbacks. One obvious problem is safety. If a gloved hand is used to insert and retrieve objects, there is the danger of acid burns as a result of pinhole leaks or the tearing of a glove on a sharp object. The use of tongs is less hazardous, but introduces a new problem. Have you ever attempted to retrieve a glass stopper from the bottom of a murky dichromate cleaning solution with a pair of tongs? At best it is a very frustrating endeavor.

We have devised a simple solution to this problem. Articles to be cleaned are placed in a polyethylene basket which is lowered into the dichromate cleaning solution. When cleaning is completed the basket is removed from the solution and taken to a sink where the excess cleaning solution is washed off. The entire cleaning process is accomplished without ever having to place a gloved hand in the cleaning solution, and even very small objects are readily retrievable.



A polyethylene basket can be constructed from a one-gallon micro cleaning-solution bottle. The top of the bottle is cut off about 18cm from the bottom and a number of ¼-inch holes are drilled in the bottom. A handle is fashioned from a 2 x 30cm strip of polyethylene cut from the discarded top of the bottle. A ¼-inch hole is drilled in each end of the handle and two ¼-inch holes are drilled along the top edge of the basket. The handle is riveted to the basket using 1-cm lengths of ¼-inch polyethylene tubing. The ends of the polyethylene tubing are softened with a soldering gun or other hot object and flared to rivet the handle to the basket.

The basket will fit into a 4-liter Pyrex® beaker. We have used such a basket in a potassium dichromate/sulfuric acid cleaning solution for the past six months without any noticeable deterioration of the basket.

Thomas D. Harris
Assistant Professor of Chemistry
Department of Chemistry
State University of New York at Fredonia
Fredonia, New York 14063

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1) Tsuji, J. *et al. Tetrahedron Lett.* **1983**, *24*, 5635.

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It was no bother at all, just a pleasure to be able to help.